Gould (Geo. M.)

A METHOD OF INFECTION, TREATMENT, AND PROPHYLAXIS OF PURULENT OPHTHALMIA.

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A METHOD OF INFECTION, TREATMENT, AND PROPHYLAXIS OF PURULENT OPHTHALMIA.[1]

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I. AS TO THE DISEASE.

ALMOST every case of purulent conjunctivitis indelibly impresses upon the mind of the surgeon two striking and puzzling facts:

1. The obstinacy of the disease, its stubborn persistence and unaccountable resistance to the most thorough and most scientific methods of treatment. We cleanse, we irrigate, we antisepticize, we deplete, we use counter-irritants, we stimulate, we constringe, and we cauterize—and the wretched pathologic processes keep on and on until cornea and eye are irremediably injured or ruined. Various explanations of this fact have been made, but to my knowledge the one that I am about to offer, and which seems to me to be one of perhaps several contributing causes, has not before been given.

2. With one eye infected we hasten to isolate the good eye, using all the methods, so well known, of shields, bandages, antisepsis, and various cautions to patient and nurse. Despite all our prophylactic measures, carried out with the utmost care and apparent success, the hitherto sound eye is, by-and-by, too often found

[1] Abstract of a paper read before the Section of Ophthalmology of the American Medical Association at Detroit, June, 1892.

infected, and we have to redouble our exertions to save that. Very often, indeed, the eye last affected is most affected and most injured.

II. A Method of Infection.

The explanation of these two characteristic features, or rather *one* explanation of them, I believe to be the rôle played by the nose and the lachrymal excretory apparatus as transferring agents and hiding-places of the specific germs.

1. Nose-picking with this class of patients is more common than eye-rubbing. While, therefore, the contagium may have been transferred directly to the eye, it is quite as reasonable to suppose that it may first have passed through the nares, duct, sac, and canaliculus.

It is a work of supererogation to set forth before this audience of specialists the well-known facts of the interdependence of nasal and ocular disease. I have elsewhere recapitulated these facts, and need only say that a large number of observers have demonstrated that the ocular drainage-system may be the passageway for the transfer of morbific material from the antrum of Highmore, and the nasal or post-nasal cavities, to the eye. Every modern book on rhinology speaks of this, and every physician has seen evidences of it. This, however, has been shown or suggested only in so far as relates to phlyctenular and sundry of the slighter forms of conjunctival and corneal disorders. It seems strange that no one has taken the suggested step of applying the same explanation to the origin of the more virulent types of gonorrheal and contagious purulent disease.

2. Whether or not the primary contagium may have reached the eye directly or by way of the nose, the canaliculus, sac, and duct will most certainly be the secondary sinuses and hiding-places of the specific germs or septic material. We kill the gonococcus upon or in the con-

junctiva, but do not think of the enemy intrenched just beyond the border, waiting to break over the moment our antiseptic army withdraws. Or the analogy of the Channel tunnel—both ends in possession of the French—may strike the English imagination better. In purulent ophthalmia the congestion of the parts, and doubtless often the stenosis, more or less complete, of the lumen of the canaliculus and duct, prevent any effective antiseptic irrigation of the same by natural capillarity or unaided excretion. Expression of the canaliculus and sac-contents, and aided irrigation in the manner I have advised in dacryo-cystitis (*N. Y. Med. Journ.*, June 4, 1892), would perhaps do in light cases, and when the physician does not slit the canaliculus. The thick, purulent, and gummy character of the ocular secretions can find little or no passageway through the tight punctum and canaliculus, whose lumen is narrowed or quite closed by the swollen tissues about it or forming it. Hence the living germs lying just beyond the action of our ordinary antiseptic agents, and multiplying by millions in a few hours, have an excellent breeding-ground, whence, continually erupting through the punctum, we have a prolific fountain of fresh infection.

3. Passing down the duct also, is it not natural that the germs should readily find their way around the turbinated bones and up through the opposite duct to the other eye, and thus, despite all our isolation and prophylaxis, infect that by means of the tunnel or secret passageway we had forgotten? If this seem somewhat too long a journey, repeated direct infections of the nares by the fingers would explain the late appearance of the disease in the second eye.

The foregoing explanation finds corroborative support in the fact that the nasal mucous membrane, and probably therefore the lining membrane of the duct, sac, and perhaps (though doubtless to a lesser degree) also of the canaliculus, are more resistant to the microbes of suppur-

ation and gonorrhea than the conjunctiva. It is a curious fact, this of the extraordinary sensitiveness of the ocular conjunctiva to the injurious action of these germs, and it indicates that these find in the ocular tissue a food exactly to their liking, which they are therefore continually seeking—trying always to get away from the less fertile ground of the nasal mucous membrane and into the richer soil of the ocular analogue. The granulations of trachoma have been found in the canaliculus and sac, but not, I believe, in the nose.

A recent German writer has noticed that young infants of gonorrheal mothers often show evidences of the specific infection (mucous patches) in the mouth, and that sometimes, following these oral ulcers, there ensues ophthalmia neonatorum. He also alludes to the fact that throughout the entire body the ciliated or cylindrical type of epithelium of mucous membrane is very resistant to the gonococcus, whilst in that lined by squamous or round-celled epithelium the microörganism multiplies prodigiously. This, therefore, explains why the nose and duct escape injury, whilst the conjunctiva is destroyed. It may also be added that perhaps the eye of the infant may be infected without the intermediation of the nose, by means of the hands of the careless mother or nurse (even by the child's hands), that may convey the virus directly from the mouth to the eyes.

III. The Treatment

suggests itself. The next case of gonorrheal ophthalmia I have I shall at once slit the canaliculus clear into the sac, cleanse, and antisepticize the latter precisely as I do the palpebral sulci, and thoroughly syringe the duct with the antiseptic solution. This I shall do as often and as carefully as the distinctly ocular cleansing and antisepsis. I shall also direct the same solution or a stronger one to be snuffed up the nose.

IV. The Prophylactic Measures

are quite as clearly indicated. With one eye certainly infected, I would, besides the usual prophylactic procedures, at once also open the canaliculus of the sound eye, and, while the danger lasts, irrigate the sac and duct thoroughly and repeatedly. The nasal douche also should not be neglected. The patient's hands and fingers should of course be kept aseptic and away from his nose just as carefully as from his eyes.

It may be said that this is all theory, and that I should have proved it by clinical experience before advocating it publicly. I have by experience found some confirmative evidence of the theory, but at present my only answer is that since the idea first occurred to me I have had no suitable cases, and my interest in your patients leads me to advise you to try the plan. It might save a few eyes that would be ruined whilst I alone were experimenting. I would prefer to be the father of a false theory rather than that a single eye anywhere should be blind for lack of one little method of treatment that at least seems rational, and the application of which, if it do no good, can certainly do no harm.

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